

**Notice of Allowability**

Application No.

10/542,065

Examiner

Sow-Fun Hon

Applicant(s)

FUKUOKA ET AL.

Art Unit

1772

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the amendment filed 06/25/07.
2. ☒ The allowed claim(s) is/are 7 and 17-25.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All   b) ☐ Some\*   c) ☐ None   of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☒ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08),  
Paper No./Mail Date 6/7/07
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413),  
Paper No./Mail Date 7/18/07
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☒ Other See Continuation Sheet.

Continuation of Attachment(s) 9. Other: The drawings dated 7/11/05 are accepted by the examiner.

### EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Lee Wright on 07/19/07.

The application has been amended as follows:

2. Rewrite claim 7 as:

- - A manufacturing method for a broad band cholesteric liquid crystal film comprising ~~steps of~~: polymerizing a liquid crystal mixture that is free of an ultraviolet absorbent, containing a polymerizable mesogen compound (a), a polymerizable chiral agent (b) and a photopolymerization initiator (c) between two substrates , by irradiation of one side with ultraviolet light having an intensity of ~~[0-1]~~ 1 to 20mW/cm<sup>2</sup>, wherein the two substrates are made of the same material, the broad band cholesteric liquid crystal film has a reflection bandwidth of 300 nm or more, a pitch length in the cholesteric liquid crystal film changes so as to narrow continuously from a side irradiated with ultraviolet light, and the pitch length is changed such that the difference in pitch length between the side of ultraviolet light irradiation and the opposite side is made at least 100 nm. - -

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3. Specification: Page 1: Top of page: Delete "DESCRIPTION".

**REASONS FOR ALLOWANCE**

4. The following is an examiner's statement of reasons for allowance.

The closest cited prior art of record, US 6,099,758 and US 5,691,789, fail to teach or suggest, even in view of each other, JP 2002308832, US 6,515,785, US 6,088,079, JP 2002265421, US 7,011,913 and US 6,805,920, a manufacturing method for a broad band cholesteric liquid crystal film comprising: polymerizing a liquid crystal mixture that is free of an ultraviolet absorbent, containing a polymerizable mesogen compound (a), a polymerizable chiral agent (b) and a photopolymerization initiator (c), between two substrates made of the same material, by irradiation of one side with ultraviolet light having an intensity of 1 to 20 mW/cm<sup>2</sup>, wherein a pitch length narrows continuously from the side that is irradiated with ultraviolet light, and the difference in pitch length between the side that is irradiated with ultraviolet light and the opposite side is at least 100 nm, and wherein the broad band cholesteric liquid crystal film has a reflection bandwidth of 300 nm or more.

None of the references teach the manufacturing method with the combination wherein both the mesogen compound (a) and chiral agent (b) are polymerizable, and the pitch length in the cholesteric liquid crystal film changes so as to narrow continuously from the side irradiated with ultraviolet light having an intensity of 1 to 20 mW/cm<sup>2</sup>.

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Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

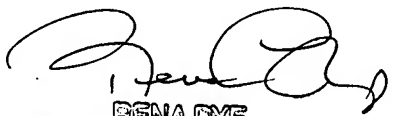
Any inquiry concerning this communication should be directed to Sow-Fun Hon whose telephone number is (571)272-1492. The examiner can normally be reached Monday to Friday from 10:00 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye, can be reached at (571)272-3186. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

S. Hon  
Sow-Fun Hon

07/19/07

  
RENA DYE  
SUPERVISORY PATENT EXAMINER  
AU 1772